

## Department of Correction IT Plan 2007-2009 Biennium

### **Chapter 1 – Departmental/Agency Strategic Business Initiatives and Major Business Requirements**

The Department of Correction can be thought of as having four major operational business units, and a number of supporting units. The operational units are Division of Prisons, Division of Community Corrections, Division of Alcohol and Chemical Dependency Programs, and Prison Enterprises. Rather than recapping the historical functions and activity levels of these divisions, it is more important to concentrate on their current challenges.

For Division of Prisons, those challenges include:

- Improving medical cost management – inmate medical costs topped \$160MM last year
- Coordinating activities surrounding construction and opening of a new hospital at Central Prison – while we have run hospitals in the past, we have not built and operated a modern hospital on this scale
- Trying to match the right kind of brick and mortar prisons facilities with a rising prison population – the prison population is increasing, the predictive models are very good but not perfect, the lead time to secure capital appropriations and construct new facilities is long, and the cost of guessing wrong is expensive
- Dealing with pay, recruitment and retention of correctional officers – officer pay is low and working conditions are difficult. Officer turnover is very high, which has an impact on training costs, not to mention safety.
- Getting better at equipping inmates for release. 98% of inmates eventually complete their sentence and are released from prison. We need continuous improvement in teaching literacy, teaching job skills, finding jobs, and following up as the inmates get established in the community.

For Division of Community Corrections, the challenges include:

- Managing an increasing array of sanctions (control mechanisms and penalties). We need to apply the right tools at the right time for the right reason.
- Making sure everyone under supervision is monitored appropriately, with a frequency that matches their characteristics. If these offenders have further problems with the criminal justice system (and many will), we need to be able to demonstrate that we supervised them reasonably.
- Getting better at predicting behavior and offense patterns. We have over 130,000 offenders on active supervision. We have supervised hundreds of thousands over the years. We have good data on how offenders behave in a variety of situations. Can we get better at anticipating and making corrective action?

- Dealing more effectively and proactively with sex offenders. We have a legislative requirement to begin active GPS monitoring. We see this effort expanding and involving more information sharing with outside agencies.

For Division of Alcohol and Chemical Dependency Programs, the challenges are:

- Improving our evaluative capability. Substance abuse problems are one of the root causes of many crimes. Treatment is difficult and staff resources are always scarce. We need to continue to improve our understanding of what works with which offenders in which circumstances.

For Prison Enterprises, the challenges are:

- Fitting what is essentially a large private business into the government infrastructure. State business systems are not geared toward manufacturing and cost accounting. There are severe limitations on entering new lines of business. Although this is a business, it also serves the social function of providing inmates with work skills, so sometimes it acts as a program with profit motive forced into a secondary position.
- Projecting the business presence further into the e-commerce space.

The Department manages a range of supporting functions similar to a large municipal government, so even though these groups are listed in less detail, taken together, they represent more activity in a range of functions than is found in many small or even mid-size state agencies. In an agency like Correction, where scarce additional resources must always go first to the operational business lines to deal with mandatory needs like food, clothing, medical care, basic utilities, and staffing to assure basic control needs are met; support staff resources tend time-and-again to be deferred. As a consequence, a general theme among these groups is that they are outgrowing manual processes and user-developed tools. A second theme, in these support groups as well as the core business units is document management. Notes on the challenges of the different groups follow:

- Controller/Purchasing/Warehouse/Radio and Transportation shop: BEACON will require significant business reengineering work. Small Excel and Access applications will need to be evaluated and reworked. Document management is a need in accounting and purchasing areas. As the later phases of the enterprise business systems improvement program come on-line, the Warehouse is a significant user of the little-used NCAS inventory module, and will need to get special attention.
- HR/Training: BEACON will hit these areas hard. Business process reengineering will be huge, as will training of 20,000 staff at 450 locations in a very short time. Training recordkeeping is significant for the agency, where certified officers are required to have certain courses on a strict rotation cycle, or they can't work. If this capacity is not in BEACON, it will need to be met in some other fashion.
- Combined Records: Although OPUS has significantly reduced paper records, there are still numerous paper documents, not the least of which is the order

signed by the judge, and this group keeps them. They desperately need document imaging and retrieval capability.

- Engineering: They need improved tools to manage multiple large construction projects, as well as a components inventory of items used in their work. They also need document management, to include versioning and check-in-check out for construction documents. Finally, there is increasing convergence between process control automation and more traditional IT network infrastructure. There are business drivers to be able to monitor and manage building systems such as HVAC systems remotely, over the network. PC's are increasingly used to control such equipment. Maintaining current operating systems and patch levels on this type of equipment is becoming more critical.
- Safety: The agency is large enough to need automated tools to track incidents and safety issue resolution. Preparation for pandemic-type events also falls heavily on this group.
- Inmate Grievance: This group works at arms-length to the agency, and provides a forum for inmates to file grievances. They need a networked case management and tracking capability to replace an existing Access system.
- Parole Commission: This group is called upon to make risk-based decisions on inmates who are eligible for parole. They need increasingly sophisticated data mining tools to find good candidates and project potential eligible inmates in the future months and years.
- Research and Planning: This group is called upon to make complex projections and answer increasingly complex questions. Evaluation has also become a more important aspect of their work. They need to continually improve their ability to use OPUS data for business intelligence purposes.
- Victims Services: This group works with, and protects the rights of, victims. They need to be assured of the privacy of their data. They also need careful coordination of offender events to victim notification.
- Extradition: This group returns offenders from other states to North Carolina.
- Legal: There is a need in this area, as well as allied areas such as employee grievance, workers comp, and mediation activities, for a case management and case tracking capability.

## **Chapter 2 – Requirements for Transitioning Existing IT Activities/Resources**

The foremost area where we have to look at transition is in our OPUS offender management system. We run the business with this 1990's decade green-screen application that was tailored to our then-existing infrastructure of control units and terminals, with a smattering of PC's. We are doing some excellent life-extending work by capitalizing on the robust relational database with some web-based search tools to help managers get at the data for operational and reporting purposes. But this technique does not add the missing workflow components that could help the business. Nor does it address overall ease-of-use, and the resulting high cost of training, which is particularly vexing in Prisons' high-turnover environment. Finally, OPUS is a mediocre tool for our Probation and Parole officers, who tend to be mobile, and who need to record and search case notes. We expect to put forward an initiative to begin the next generation of this critical application. We also discuss architectural aspects of this in Chapter 3.

The IT components of a managed health care system are the next critical need. The agency spends over \$160MM on medical care for inmates, and there is great interest, both in the agency, and in the Legislature, to be sure we are controlling these costs well. We have some limited functionality now, with basic health profiles for an inmate, an appointment scheduler, some encounter information, and a medical contracts management module. We are working with the Division of Prisons Health Services to understand what a typical IT portfolio for a large, managed healthcare organization might look like, and then within that framework, looking for the components that have the best early rates of return.

Another area where we need to extend the existing IT application is Prison Enterprise. Over the last several years, we have gradually enhanced an ERP application that has greatly improved their ability to manage the various business lines, to include order taking and tracking, warehousing, shipping and invoicing functions. The business now sees the need to improve their web presence with the ability to present a catalog, process orders from a limited group of organizations that can purchase from Prison Enterprise, and perhaps enable custom orders in some of the business lines. This recognizes the legal limitations on who can be customers by trying to make it as easy and attractive as possible for existing customers to do business.

On a different topic, we have instances across the agency of the need to provide an improved toolset and capability supporting business intelligence. We have versions of this need in Prisons, Community Corrections, Research and Planning, Parole Commission, Legal, and Safety. It might make more sense to use this convergence of need to move into a nascent data warehouse effort.

Infrastructure refresh funds continue to be a need. We are just completing a complete refresh of PC's using nonrecurring money. The divisions have some equipment money to meet the ongoing recurring needs, but not nearly enough. Our management has made it

clear that they would like to get out of this feast-and-famine approach to PC replacement and pair this recurring need with recurring money. Likewise, we are a large agency with a significant and geographically far-flung inventory of network gear. We are beyond end-of-life on many of our switches, and don't have recurring funds to replace them. As Correction continues to be drawn more closely into an Enterprise environment, keeping this kind of infrastructure up to current standards is going to become more of a hard-and-fast requirement.

On a final topic, although we just hired our first full-time project manager position in the past year, the increased emphasis on projects, as well as recording and maintaining information in the Portfolio Management Tool is already outstripping the capacity of that position. Entry and maintenance duties, in particular, are proving difficult, and using the Tool is difficult enough that distributed data entry is not feasible. However, using our project manager to do significant data entry work each week is not the best use of her time. We are considering what resources need to be added to meet this need.

### **Chapter 3 – IT Specific Economic-Driven Requirements of Opportunities**

The Department of Correction has historically been compelled to deliver its support services frugally, in deference to the significant operational costs of running this large agency. IT has been no exception to this pattern. Consequently, technology implementations have not been extravagant, and saving opportunities are somewhat limited.

However, that same pattern has meant that we keep technology and applications running for extended life cycles, and sometimes that can drive costs up. One area where we have concerns is the OPUS architecture. Built in the mid-1990's, OPUS is a large, monolithic COBOL, CICS, DB/2 application. It provides good business functionality and excellent depth of data to the overall agency. But changes in the technology and policy landscape bear watching. OPUS is wedded to the mainframe environment, and that gives us limited portability, in an era where other state agencies are increasingly writing their new applications for other platforms. Our mainframe costs are rising due to increased user transactions (a good thing, as it means the users are getting value from the system and, more importantly, from the data), but there is increasing risk that Correction will be one of the few remaining agencies relying on the mainframe platform, with the potential to absorb a large percentage of that not-insignificant cost. Recently, ITS charges for computing services have crested \$700,000 per month.

Additionally, the current shift from agency-managed contractors to outsourced work packages is proving very difficult for us to fit with the monolithic OPUS architecture.

As a result, we may have an opportunity to better manage costs by getting some help in rearchitecting the OPUS application in terms of portability of platform and granularity of modules. The objective would be to move gradually to the next generation of OPUS where we could much more easily change platforms; perhaps, with more effort, move to an alternate database; make easier build/buy decisions, module by module; and where COTS solutions weren't available, have a viable choice to build in-house, or describe a discreet package of work that could be outsourced.

As part of this discussion, a second area where we need to improve our toolset is in application development and database management/monitoring tools. Budget constraints forced our developers to use free or very inexpensive toolsets as they begin thinking about developing the next generation of our OPUS database. As we move forward now to seriously look at the architecture, that effort ought to include deciding on and providing the developers with professional grade tools to increase their productivity, and training them to use these tools successfully. Similarly, we run an extremely large database, with a high volume of transactions. We have shown that better tools to monitor and tune can have very rapid payback.

A third area where we continue to try and deliver our services more effectively is remote management of workstations. For an agency our size, we have a very small staff of

technicians, with little likelihood of ever getting an adequate number (whatever that means, by whatever metrics anyone wants to apply). As a result, we are always looking at tools, techniques and improved skills to do more remotely. We have standardized to a single desktop image for most of the agency. We encourage employees to save data to a network drive rather than to their individual hard drive so that the PC is increasingly a swappable item, like a telephone. Given the recent decision to change to Trend antivirus, we took extra efforts to become good at remotely removing the old antivirus and pushing Trend, as an exercise in increasing our remote management skills.

A fourth area where IT is being called upon to create capability is document management. Across the agency, we have a rising need ranging from simple imaging to reduce physical storage and improve access; to more complex document management needs like versioning and contextual search. IT needs to organize this in a common infrastructure and architecture to avoid the cost of individual pocket implementations that will eventually be less satisfactory and will cost the agency more.

Finally, we need to create a more unified approach to video conferencing. Our Division of Prisons was an early implementer of this technology in our agency. They are now refreshing some of their installations to meet current ITS recommendations. But there are cost-saving opportunities across the agency, including distance learning for staff and inmates, applicant interviews, court appearances, victim interviews, parole hearings, telemedicine, and general meetings. Traveling for staff is getting more expensive. Moving inmates for these purposes is always expensive. IT needs to take the lead in architecting an overall infrastructure suited to our agency to meet these business needs.

## **Chapter 4 – IT Initiatives Developed From and Aligning With Plan Drivers**

Based on the business drivers presented in this plan, there are a number of areas where the Department may consider proposing IT initiatives. As always, constraints include limitations on overall expansion funding imposed by the State Budget Office on the respective agencies; the priority calls on those potential new funds to meet core business requirements such as food, clothing, utility costs, and medical care for inmates, and direct officer staffing to supervise inmates and offenders; and the timing of related projects so that subject matter experts are not pulled in too many competing directions during a particular period. Potential IT initiatives include:

- Next generation of OPUS: This project would begin a phased refresh of the 12-year old OPUS system that is the major application used in the Department to manage all offenders. As noted, the application is a mainframe, green-screen application. Objectives would include moving to more portability of hardware platform and potentially database, adding workflow elements that do not exist in the current system, and making the system easier to use, and by extension, easier to train. Within the next two years, we would initiate this project by doing a planning effort that would concentrate on architecture issues and an overall migration plan. We would expect to follow that by a phase one implementation focusing on the intake process, where offenders are received into the system, pertinent facts are recorded, immediate health and mental health issues addressed, and plans and programs are charted. Related efforts include the Health Information initiative described next, as well as the document management initiative. OPUS originally cost \$17 Million in outside costs plus the cost of State staff, so even though a refresh begins with a solid database and excellent knowledge of detailed business rules, lifecycle costs of this effort will not be insignificant. Return on investment will come from potential reductions in operating costs, improved operation of the business units by the introduction of workflow, and reduced cost of training staff, particularly in our high-turnover environment.
- Health Information Technology Initiative (HITI): Session Law 2005-276, SB 622, directed the Department to study cost containment of inmate health care. The result will be a comprehensive healthcare cost management effort, of which IT will play a supporting role. In the IT arena, we have been looking at what the application portfolio for a typical managed care organization might look like. Within that group of applications, we are looking at what we have now, and what improvements, either to what we have, or to applications we don't have, would result in the most significant return on investment. We anticipate a planning project, followed by efforts in outside provider contract management, medical document imaging (see project described below), and some effort in electronic patient records. The comprehensive cost of these efforts, as well as others that will be defined in the planning project, is

significant, but when overall inmate medical costs are \$190 Million, small percentage savings will still generate excellent return on investment.

- Department-wide document management effort: There is a growing and diverse need for a department level service to image and manage documents. This project would begin with a planning effort that would establish an approach, and architecture and an infrastructure template. Two high-value implementations would then follow. One would image our inmate records. Currently, active records occupy over 500 five-drawer filing cabinets at our Yonkers Road facility in Raleigh, and our inactive records are one of the high-volume record sets at the State Records Center. The document management aspect of this project is straightforward, with the objective to capture, maintain, and make available a static, authoritative image of critical documents relating to each inmate. Benefits would come from accelerated workflow between intake prisons and our central records group who is responsible for auditing the records and setting a release date. Additional benefits would be the ability to convert filing space at Yonkers Road to office space, thus extending capacity of the building, and reduced cost of storing inactive records at the State Records Center. A second project would be medical records, which would have all the business drivers of the inmate records project, but add complexities such as increased date sensitivity (need to see the latest case notes or test results) and a wider range of document types (x-rays, photos, etc.). We are currently sizing this effort. Return on investment will come from reducing the number of times files need to be physically accessed and shipped around the state as health care staff references these documents.
- Additional project management resource: For a number of years, Correction had little new money, and our IT efforts were centered on maintenance and small enhancements. This meant that we had limited interaction with the Project Management Tool. As the funding situation has improved somewhat, the emphasis on project management and application portfolio management has also increased. Recently, major equipment replacement has also been added as a event that requires entry in the Tool; in a large agency such as Correction, even if we are buying multiples of basic, standard technology, the overall dollar amount will typically take us into entering the information as a project. Although we added our first project management position a year ago, we are already seeing that entry and maintenance of information in the project reporting tool is commanding an increasing portion of that person's day. At the same time, we are pleased that the agency overall has immediately seen the clear benefit of having a professional project manager; we need an additional project management resource so that we can continue to gain value in this area.
- Prison-to-court video project: We spend a tremendous amount of money, and incur considerably risk, transporting inmates across the state to court

appearances, particularly first appearances, which can be brief and somewhat perfunctory in nature. We are in discussions with the Administrative Office of Courts to consider a joint effort to develop an approach to do many of these appearances by video, between the prison and the courthouse. Return on investment would come from reduced officer time devoted to travel and supervision, as well as reduced fuel costs. Grant funding may help offset some of the cost of this effort.

- Equipment replacement recurring funds: One of the lessons-learned out of the consolidation pilot has been the need for agencies to keep their infrastructure equipment current. The State CIO recently communicated this request to state agencies. DOC does not have adequate recurring funds to replace PC's, switchgear, and other network infrastructure equipment within the recommended lifecycle, and has made efforts in past budget cycles to improve on this picture, with some limited success. We will continue to try and make further gains in the upcoming budget. Total annual shortfall is approximately \$5 Million.
- Small database application transition: We don't have a good solution for those user-developed databases that have become business critical, or gone from single user to multi-user without the requisite multi-user architecture, or had the creator of the database leave without documenting the application. We are considering adding one-to-three staff who would concentrate on this problem, essentially analyzing the existing system, assessing data structure and business rules, and then stabilizing the database.
- Business intelligence data warehouse infrastructure: Currently, the application development work our clients prize the most involves OPUS life-extending work to allow user-defined queries against the rich database, tailored by our developers for ease-of-use. This really amounts to business intelligence work. As we begin to move forward on the next generation of OPUS, it is clear that the business would like to see more of this ability to get at the data, without necessarily making our users become experts either at the data, or complex Boolean logic. We are looking at opportunities to move to a more sophisticated data warehouse structure if we can show a return.
- Sex offender GPS monitoring scale-up and integration: This stems from a requirement by the 2006 General Assembly that we begin active GPS-based monitoring of sex offenders. At the outset, we will use an outsourced service to meet the tight January 1, 2007 start requirement. Over time, however, we will need to add integration to our existing OPUS system, and work out details for more interactive data sharing with law enforcement. As we gain experience with the technology, we expect to see the population of offenders subject to active and passive monitoring undergo modification and probably expansion. Although grant funding may offer some possibilities, generally, that funding will not assist with ongoing cost of operations.